STARS ACADEMY LAHORE

MULTAN CAMPUS

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STARS ENTRY TEST SYSTEM-2019

MDCAT (CRASH PROGRAM)

Test Code: CRASH 12 **Time Allowed: 150 mins**

BIOLOGY

1. **The enzymes involved in viral replication are synthesized:**
A) On the viral ribosome C) By the host cell
B) On the interior surface of viral membrane D) On the interior surface of viral coat
2. **An isolated virus is not considered living, since it:**
A) Separates into two inert parts C) Rapidly looses its genome chemically inert
B) Can not metabolize D) Is coated with an air tight shield.
3. **In the lysogenic cycle, the DNA of a bacteriophage:**
A) Joins the bacterial chromosome C) Attaches to the inner surface of the host membrane.
B) Is immediately degraded when it enters the host. D) Goes directly to the host's ribosome for translation.
4. **Phylogeny describes a species:**
A) Morphological similarities with other species C) Reproductive compatibilities with other species
B) Evolutionary history D) Geographical distribution
5. **Binomial nomenclature system was given by:**
A) Jenner B) De Duve C) Lamark D) Linnaeus
6. **To accommodate *Euglena* like organisms and bacteria, kingdom. Protista was proposed by:**
A) Ernst Hackle B) Linnaeus C) Robert Whittaker D) E-Chatton
7. **Orders include related:**
A) Families B) Genera C) Species D) Classes
8. **Mad cow infection and mysterious brain infection in man are caused by:**
A) Bacteria B) Fungus C) Prions D) Viron
9. ***Solanum melangena* is scientific name for:**
A) Onion B) Potato C) Brinjial D) Tomato
10. **The basic unit of classification is:**
A) Genus B) Phylum C) Class D) Species
11. **The smallest known viruses contain RNA in spherical Capsid are the:**
A) Polio Viruses B) Pox Viruses C) Herpes Viruses D) Influenza Viruses
12. **Common name of *Allium cepa* is:**
A) Pyaz B) Bathu C) Amaltas D) Chana
13. **In five kingdom system, Eukaryotic multicellular reducers are placed in kingdom:**
A) Monera B) Protista C) Fungi D) Animalia
14. **Of the following terms, which one includes all the others?**
A) Species B) Class C) Phylum D) Order
15. **The major cause of hepatitis B is:**
A) Blood transfusion B) Absence of fibrinogen C) Blood clotting D) Contaminated soil
16. **HIV is classified as:**
A) Bacteriophage B) Oncovirus C) Retroviruses D) Icosahedral virus
17. **The viruses can reproduce:**
A) Without invading any cell B) In bacterial cell C) By mitosis D) By meiosis
18. **The sexual process exhibited by most ciliates is called:**
A) Oogamy B) Binary fission C) Conjugation D) Fertilization
19. **Parasitic protozoans that form spores at some stage in their life belong to which group:**
A) Ciliates B) Actinopods C) Diatoms D) Apicomplexans
20. **Algae which have shells composed of two halves that fit together like petri dish belong to:**
A) Brown algae B) Diatoms C) Euglenoids D) Green algae

21. **Chlorophyll a, chlorophyll b and carotenoids are found in:**
A) Green algae, golden algae and diatoms B) Green algae, golden algae and euglenoids
C) Green algae, euglenoids and plants D) Red algae, euglenoids and brown algae

22. ***Entamoeba histolytica* cause:**
A) Cholera B) Fever C) Dysentry amoebic D) Migraine
23. **The causative agent of African sleeping sickness is:**
A) Tsetse fly B) Mosquito C) Trypanosoma D) Trichonympha

24. An outer flexible covering of ciliates is:
A) Sheath B) Cuticle C) Cell wall D) Pellicle

25. A unicellular, non-motile green alga is:
A) Volvox B) Ulva C) Chlorella D) Kelps

26. The classification of algae into phyla is largely based on the composition of:
A) Cell wall B) Cell membrane C) Cytoplasm D) Pigments

27. *Trypanosoma* is an example of:
A) Aetinopods B) Zooflagellates C) Apicomplexans D) Ciliates

28. Example of Apicomplexans is:
A) Vorticella B) Plasmodium C) Stentor D) Amoeba

29. The edible algae is:
A) Mushroom B) Kelps C) Diatoms D) Dinoflagellates

30. Tests of foraminiferans, are made up of:
A) Silica B) Calcium C) Sulphur D) Magnesium

31. Daitoms belong to phylum:
A) Rhodophyta B) Phaeophyta C) Chrysophyta D) Pyrrophyta

32. The feeding stage of slime mold is called:
A) Plasmodium B) Pseudopodium C) Endocytosis D) Seizing

33. The protozoans have two kinds of nuclei are:
A) Amoeba B) Zooflagellates C) Ciliates D) Actinopods

34. Algae which take part in building coral reefs along with coral animals:
A) Red algae B) Brown algae C) Green algae D) Diatoms

35. Actinopods with glassy shells are:
A) Rotifers B) Radiolarians C) Diatoms D) Forams

36. Margulis and Shwartz accommodate the diverse assemblage of organisms of Protista into:
A) 37 Phyla B) 27 Phyla C) 10 Phyla D) 5 Phyla

37. *Polysiphonia* is an example of:
A) Red algae B) Green algae C) Brown algae D) Diatoms

38. Kingdom Protoctista was proposed by:
A) Herbert Copland B) Robbert Whitaker C) John Hogg D) Margulis and Schwartz

39. Sleeping sickness is transmitted by bite of infected:
A) Lice B) Tick C) Tsetse fly D) Mosquito

40. Giants of the protists kingdom are included in:
A) Brown algae B) Red algae C) Green algae D) Diatoms

41. Phytophthora infestans belongs to the group:
A) Myxomycota B) Oomycetes C) Euglenoids D) Rhodophyta

42. Late blight of potato is cause by
A) Virus B) Bactaria C) Phytophthora infestans D) fungi

43. The closest relatives of fungi are probably:
A) Animals B) Slime molds C) Brown algae D) Vascular plants

44. Unicellular fungi are the:
A) Rusts B) Brown mold C) Green mold D) Yeasts

45. Parasitic fungi directly absorb the nutrient from the living host cytoplasm by:
A) Haustoria B) Roots C) Rhizoids D) Gametangia

46. The most common Smut fungi are:
A) Ustilago B) *Puccinia* C) *Penecillium* D) Yeast

47. Poisnous mushrooms are called:
A) Truffles B) Morels C) Toad stools D) Agaricus

48. Lovastatin is used to control blood:
A) Pressure B) Cholesterol C) Glucose D) Uric acid

49. All fungal nuclei are haploid except for transient diploid:
A) Spores B) Zygote C) Conidia D) Zygospores

50. The most common rust fungi are:
A) Ustilago B) Puccinia C) Yeast D) Penicillium

51. Loose smut of wheat is cause by :
A) Ustilago B) Puccinia C) Yeast D) Penicillium

52. *Parmelia* is an example of:
A) Fruticose lichen B) Foliose lichen C) Crustose lichen D) Moss lichen

53. Examples of soil-dwelling carnivorous fungus is:
A) Penicillium B) Arthrobotrys C) *Armillaria* D) *Pleurotus*

***54. Alternaria* is an example of:**
A) Zygomycota B) Ascomycota C) Basidiomycota D) Deuteromycota

55. Funi can tolerate a wide rane of pH from:
A) 3---8 B) 4---6 C) 2---9 D) 1---5

56. Predatory oyster mushroom paralyses the following organisms:
A) Nematodes B) Algae C) Bacteria D) Snails

57. The mutulistic association between certain fungi and roots of vascular plants is called:
A) Lichens B) Budding C) Parasitism D) Mycorrhizae

58. Which of the following component is found in the cell wall of fungi?
A) Cellulose B) Chitin C) Proteins D) Glycerol

59. Fungi which cause oral and vaginal thrush in humans:
A) Sarcomeres B) Candida albicans C) Lovastatin D) Aspergillus

60. Myxomycotes are also called
A) Water molds B) Slime molds C) True molds D) True fungi

61. Trichonympha is specialized flagellate which lives as symbiont in the gut of termite and helps in the digestion of:
A) Proteins B) Lipids C) Fats D) Dry wood

62. When plasmodium enters the human blood it first enters in the:
A) Red blood cells B) Liver cells C) White blood cells D) Stomach cells

63. It has been used as an experimental organism in research of photosynthesis:
A) Ulva B) Volvox C) Chlorella D) Spirogyra

64. Water regulation in fresh water ciliates is controlled by special organelle called
A) Food vacuole B) Contractile vacuole C) Cytoplasm D) Nucleus

65. Malaria is caused by the bite of mosquito
A) Culex B) Anopheles mosquito C) Aedes Egypti D) Drosophilla

66. All protists evolved from
A) Eukaryotes B) Prokaryotes C) Fungi D) plants

67. The number of ascospores per ascus is:
A) 4 B) 8 C) 12 D) 16

68. Griseofulvin is obtained form fungi and is used to:
A) Relieve migraine B) Inhibit fungal growth C) Lower blood cholesterol D) Prevent transplant rejection

69. Nuclear mitosis is found in:
A) Algae B) Plants C) Fungi D) Animals

70. It is pathogenic fungus, measured upto 15 hectares:
A) Armillaria B) Pleurotus C) Arthrobotrys D) Agricus

71. There are over ________ species of sac fungi:
A) 10,000 B) 30,000 C) 20,000 D) 60,000

72. Saccharomyces cerevisiae is most commonly exploited:
A) Yeast B) Bacteruim C) Alga D) Plant

73. It is commonly called pink yeast:
A) Puccinia B) Aspergillus C) Rhodotorula D) Candida

74. Which of the following group represent pathological fungi?
A) Mushrooms, morels and truffles B) Rusts, smuts and molds C) Penicillium D) All of above

75. The structure of virus which belongs to the host cell
A) Envelope B) The capsid C) The genome D) All of these

76. Death cap/death angel (AmanitA) and Jack O' Latern mushroom are examples of:
A) Edible mushrooms B) Poisonous mushrooms C) Both of them D) None of these

77. Scientific name of Amaltas is
A) Allium cepa B) Cassia fistula C) Homo sapiens D)Solanum tuberosum

78. Vaccine was discovered by
A) Louis Pasleur B) Edward Jenner C) Ivanowski D) Stanly

79. The retroviruses have a special enzyme called
A) Transcriptase B) Polymerase C) Reverse transcriptase D) Ligase

80. The terms procariotique and eucariotique were proposed by
A) Robert Whittaker B) Earnst Haeckel C) Margulis of Schwartz D) E Chatton

CHEMISTRY

81. Alkaline earth metals form ions of the general formula
A) M^{2+} B) M^+ C) M D) M^{2-}

82. The alkaline earth metals Ba, Sr, Ca and Mg may be arranged in the order of their decreasing first ionization potential as
A) Ca, Sr, Ba, Mg B) Mg, Ca, Sr, Ba C) Sr, Ba, Mg, Ca D) Ba, Mg, Ca, Sr

83. Among the alkaline earth metals, the element forming predominantly covalent compound is
A) Ba B) Sr C) Ca D) Be

84. The hydroxide which is best soluble in water is
A) $Ba(OH)_2$ B) $Mg(OH)_2$ C) $Be(OH)_2$ D) $Ca(OH)_2$

85. Which of the following is least soluble in water?
A) $BeSO_4$ B) $BaSO_4$ C) $CaSO_4$ D) $MgSO_4$

86. Amongst LiCl, RbCl, $BeCl_2$ and $MgCl_2$ the compounds with greatest and the least ionic character, respectively, are
A) LiCl and RbCl B) RbCl and $BeCl_2$ C) RbCl and $MgCl_2$ D) $MgCl_2$ and $BeCl_2$

87. Among the following oxides, the one which is most basic is
A) ZnO B) MgO C) Al_2O_3 D) N_2O_5

88. A metal M readily forms its sulphate MSO_4 which is water soluble. It forms its oxide MO. It forms a hyroxide M(OH)2 which is quite insoluble in water but soluble in NaOH solution. Then M is
A) Mg B) Ba C) Ca D) Be

89. Which of the following does not belong to 3rd period
A) Ne B) Na C) Si D) Al

90. Which element of 2nd period has higher ionization among the followings
A) B B) C C) N D) O

91. Ionic radius of F^- ion is
A) 77pm B) 181pm C) 136pm D) 122pm

92. Highest melting point is shown by the element:
A) P B) S C) Cl D) Ar

93. Highest boiling point in 2nd period is of
A) B B) C C) N D) F

94. Lowest boiling point amongst the followings in 3rd period
A) Si B) P C) S D) Al

95. The reaction of Mg with steam produces
A) $Mg(OH)_2 + H_2$ B) $MgO + H_2$ C) $MgO_2 + H_2$ D) Mg_2O_3

96. Which of the following hydroxide is used in antacid suspensions
A) $Mg(OH)_2$ B) $Ca(OH)_2$ C) $Sr(OH)_2$ D) $Ba(OH)_2$

97. Which of the following oxides is water insoluble
A) BeO B) SrO C) CaO D) BaO

98. Ionic radius of Na^+ is
A) 95pm B) 157pm C) 181pm D) 191pm

99. Keeping in view the size of atoms which order is correct
A) C1 > I B) Mg > Sr C) Ba > Mg D) Li > Na

100. Which is a misfit pair
A) Ca, Ba B) Na, K C) Ca, Mg D) Na, Be

101. Which has greater size
A) Al^{+3} B) Mg^{+2} C) Si^{+4} D) Na^{+1}

102. Which halogen causes severe burns which heal slowly
A) F_2 B) Cl_2 C) Br_2 D) I_2

103. Which of the following compounds contain both chlorine and fluorine?
A) Teflon B) Bleaching powder C) Freon D) Cryolite

104. The halogen used in toothpastes and builds a protective coating on teeth is
A) F B) Cl C) Br D) I

105. Which of the following statements is correct about halothane
A) It is an anesthetic substance B) It is Used a cooling agent C) Used as pain killer D) Used as protective coating

106. Which is incorrect
A) F_2 can oxidize $C\ell^-$, Br^- and I^- C) I_2 can oxidize Br^-
B) $C\ell_2$ can oxidize Br^- and I^- D) HI is the strongest reducing agent

107. Chlorine is used as a bleaching agent, which of the following properties is related to its bleaching action:
A) Oxidizing agent B) Reducing agent C) Chlorinating agent D) Dehydrating agent

108. Cl_2 reacts with cold aqueous NaOH to produce:
A) NaClO B) Hydrated calcium sulphate C) $NaClO_3$ D) $NaClO_2$

109. Which one of the following has minimum melting point
A) Fluorine B) Chlorine C) Iodine D) Bromine

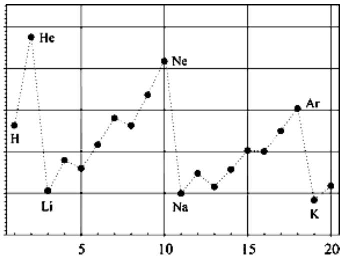
110. The elements which belong to IIIA group and IVA group are?
A) s-block elements B) p-block elements C) d-block elements D) f-block elements

111. Chlorineheptaoxide is the anhydride of?
A) chlorous acid B) chloric acid C) perchloric acid D) hypochlorous acid

112. Half-life of astatine is:
A) 8.3 min B) 8.3 hr C) 8.3 days D) 8.3 years

113. Which of the following equations represent the reaction that occurs when calcium nitrate is heated strongly?
A) $Ca(NO_3)_2 \rightarrow Ca(NO_2)_2 + O_2$ C) $Ca(NO_3)_2 \rightarrow CaO + N_2O + 2O_2$
B) $2Ca(NO_3)_2 \rightarrow 2CaO + 4NO_2 + 2O_2$ D) $Ca(NO_3)_2 \rightarrow CaO + N_2 + 2O_2$

114. The periodic variation in a physical property of elements with proton number 1 to 20 is shown in the figure below:
Which property is shown in the figure?
A) Melting point C) Atomic radius
B) Boiling point D) First ionization energy

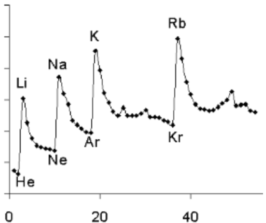


115. The lightest metal is?
A) *Li* B) *Mg* C) *Ca* D) *Na*

116. The one having maximum heat of hydration is:
A) Al^{+3} B) P^{-3} C) S^{-2} D) Both ‘A’ and ‘B’

117. A radioactive isotope of iodine is used to treat people with hyperthyroidism. Calculate the number of electrons in the following radioactive anion: $^{125}I^{-}$.
A) 52 B) 53 C) 54 D) 126

118. Which property is shown in the figure?
A) Melting point
B) Atomic radius
C) Boiling point
D) First ionization energy



119. Which row in the table is INCORRECT?

	Symbol	Protons	Neutrons	Electrons	Charge
(I)	$^{31}P^{3-}$	15	16	18	3-
(II)	$^{35}Cl^{-}$	17	18	18	1-
(III)	$^{40}Ca^{2+}$	20	20	18	2+
(IV)	$^{27}Al^{3+}$	13	14	16	3+

A) I B) II C) III D) IV

120. Which species represented by the following formulae has the largest radius?
A) P^{-3} B) K^{+1} C) Ar D) Cl^{-1}

121. Various halogen acids act as reducing agents in the following order?
A) HF>HCl>HBr>HI C) HI>HBr>HCl>HF
B) HCl>HF>HBr>HI D) HF>HCl>HBr>HI

122. Which of the following is expected to melt if the room temperature rises to 100°C?
A) Na B) Mg C) Al D) Si

123. Lithium is strongest reducing agent among alkali metals due to which of the following factor?
A) Ionization energy B) Reduction potential C) Electronegativity D) Lattice energy

124. In view of their low ionization energies, the alkali metals are
A) Weak oxidizing agents C) strong reducing agents
B) Strong oxidizing agents D) weak reducing agents

125. The first ionization energy of magnesium is lower than the first ionization energy of
A) lithium B) sodium C) calcium D) beryllium

126. Which of the following has correct increasing basic strength?
A) MgO < BeO < CaO < BaO C) BeO < MgO < CaO < BaO
B) BaO < CaO < MgO < BeO D) CaO < BaO < BeO < MgO

127. An unknown element reacts with bromine to form an ionic compound whose empirical formula is XBr_3. If ion X has 10 electrons, identify the element:
A) Mg B) Al C) Si D) P

128. Thermal stability of alkaline earth metal carbonates decreases in order
A) $BaCO_3 > SrCO_3 > CaCO_3 > MgCO_3$ C) $BaCO_3 > SrCO_3 > MgCO_3 > CaCO_3$
B) $CaCO_3 > SrCO_3 > MgCO_3 > BaCO_3$ D) None of these

129. Among F, Cl, Br and I the lowest ionization potential will be of
A) fluorine B) chlorine C) bromine D) iodine

130. The bond energies of F_2, Cl_2, Br_2 and I_2 are 155, 243, 192 and 151 kJ mol^{-1} respectively. The weakest bond will be in
A) Br_2 B) Cl_2 C) F_2 D) I_2

131. The correct order of increasing oxidizing power is
A) $F_2 < Cl_2 < Br_2 < I_2$ C) $F_2 > Br_2 > Cl_2 > I_2$
B) $Cl_2 > Br_2 > F_2 > I_2$ D) $I_2 < Br_2 < Cl_2 < F_2$

132. Which of the following is the strongest acid ?
A) HOCl B) $HClO_3$ C) $HClO_4$ D) $HClO_2$

133. The halogen that is most easily reduced is
A) F_2 B) Cl_2 C) Br_2 D) I_2

134. The correct decreasing order of acidic character is
A) HClO > HBrO > HIO C) HIO > HBrO > HClO
B) HBrO > HIO > HClO D) HClO > HIO > HBrO

135. Unlike other halogens, fluorine does not show higher oxidation states because
A) it is highly electronegative C) it has no *d-* orbitals
B) its atomic radius is very small D) the F– ion is stable and isoelectronic with neon

136. Chlorine cannot displace
A) Fluorine from NaF C) Iodine from NaI
B) Bromine from NaBr D) None of these

137. The acidic strength increases in the order?
A) HF>HCl>HBr>HI C) HF>HCl>HBr>HI
B) HCl>HF>HBr>HI D) HI>HBr>HCl>HF

138. When chlorine reacts with cold and dilute solution of sodium hydroxide, the products obtained are?
A) $Cl^- + ClO^-$ B) $Cl^- + ClO_3^-$ C) $Cl^- + ClO_2^-$ D) $Cl^- + ClO_4^-$

139. In the reaction, $2Br^- + X_2 \rightarrow Br_2, 2X^-, X_2$ is

A) N_2 B) Cl_2 C) Br_2 D) I_2

140. The table shows information about particles X and Y

	No. of protons	**No. of neutrons**	**Electronic structure**
X	**9**	**10**	**2.8**
Y	**17**	**20**	**2,8,8**

Identify X and Y.
A) Both are halogens C) both are noble gases
B) They are isotopes of the same elements D) both are negative ions

PHYSICS

141. If electron and proton have same De-Broglie wavelength, which have greater speed
A) Electron B) Both have same C) Proton D) Electron and Proton can't havewavelength

142. The minimum wavelength of X-rays can farther be reduced by
A) Reducing the pressure or cooling the target
B) Increasing the temperature of the filament
C) Using target filament of higher atomic number
D) Increasing the P.D between the cathode and the target

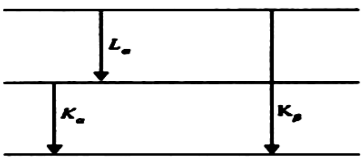
143. When an electron jumps from infinity to the ground state of an atom, wavelength of emitted light is in
A) Lyman series B) Pasch series C) Balmer series D) Pfund series

144. An atom makes a transition from a state of energy E_2 to one of lower energy E_1. Which of the followings gives the wavelength of the radiation emitted?
A) $\frac{E_2 - E_1}{hc}$ B) $\frac{hc}{E_2} - \frac{hc}{E_1}$ C) $\frac{hc}{E_2 - E_1}$ D) $\frac{c}{h(E_2 - E_1)}$

145. If the accelerating voltage across an x-ray tube is doubled
(i) The wavelength of the characteristic lines are halved
(ii) The minimum wavelength of the x-rays is halved
(iii) The x-rays are probably most penetrating
A) 1, 2 and 3 B) 2 and 3 C) 1 and 2 D) 1 and 3

146. Hydrogen atom does not emit X-rays because
A) Its energy levels are too close to each other C) It is too small in size
B) Its energy levels are too far apart D) It has a single electron

147. The wavelength of K_α and L_α X-rays of a material are 40 pm and 60 pm. Find the wavelength of K_β X-ray.



A) 24 pm C) 50 pm

B) 20 pm D) 100 pm

148. Which of the following statement(s) is (are) true?

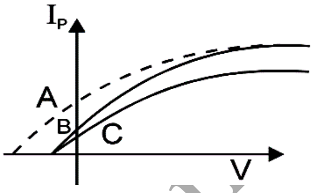
1)The energy of the quantum of light is proportional to the frequency of the wave model of light

2) In photoelectricity, the photoelectrons has as much energy as the quantum of light which causes it to be ejected

3) In photoelectricity, no time delay in the emission of photoelectrons would be expected in the quantum theory

A) 2, 3 B) 1, 2, 3 C) 1, 3 D) 1 only

149. The graph is showing the photocurrent with the applied voltage of a photoelectric effect experiment. Then



A) A & B will have same intensity and B & C have same frequency

B) B & C have same intensity and A & B have same frequency

C) A & B will have same frequency and B & C have same intensity

D) A & C will have same intensity and B & C have same frequency

150. Molybdenum is used as a target element for production of X-rays because it is

A) A heavy element with a high melting point

B) A heavy element and can easily absorb high velocity electron

C) An element having high coefficient of linear expansion

D) An element having low temperature coefficient of resistance

151. An electron in an hydrogen atom is in fourth excited state. The maximum number of spectral lines emitted is

A) 6 B) 10 C) 8 D) none

152. Stopping potential for photoelectrons.

A) does not depend on the nature of cathode material

B) does not depend on the frequency of the incident light

C) depends on both the frequency of the incident light and the nature of the cathode material

D) depends on the intensity of the incident light

153. Light of wavelength λ falls on a metal having work function $\frac{hc}{\lambda_o}$. Photoelectric effect will take place only if

A) $\lambda \geq \lambda_o$ B) $\lambda \leq \lambda_o$ C) $\lambda \geq 2\lambda_o$ D) none of these

154. When a photon collides with an electron which of the following characteristics of the photon increase?

A) wavelength B) frequency C) energy D) none of these

155. Transition from state n = 4 to n = 3 in a hydrogen like atom results in UV radiation. IR radiation will be obtained in the transition when

A) 2→1 B) 4→2 C) 3→2 D) 5→ 4

156. A steel ball of mass 1*kg* is moving with a velocity 1 *m/s*. Then its de-Broglie waves length is equal to

A) *h* B) Zero C) *h* / 2 D) 1 / *h*

157. The wavelength of continuous X – rays is

A) Proportional to intensity of incident electron beam

B) Proportional to temperature of the target

C) Proportional to intensity of X – rays

D) Inversely proportional to the energy of electrons striking the target

158. Photo-energy 6 *eV* are incident on a surface of work function 2.1 *eV*. What are the stopping potential

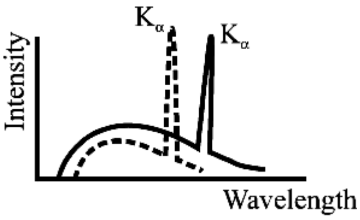
A) – 5*V* B) – 3.9 *V* C) – 1.9 *V* D) – 2.1 *V*

159. If n_r and n_v are number of photons emitted by a red bulb and a violet bulb respectively of equal power in a given time then

A) $n_r = n_v$ C) $n_r > n_v$

B) $n_r < n_v$ D) insufficient data to reply

160. Figure shows the intensity-wavelength relations of X-rays coming from two different Coolidge tubes. The solid curve represents the relation for the tube A in which the potential difference between the target and the filament is V_A and the atomic number of the target material is Z_A These quantities are V_B and Z_B for other tube then



A) $V_A > V_B$, $Z_A > Z_B$ C) $V_A > V_B$, $Z_A < Z_B$

B) $V_A < V_B, Z_A > Z_B$ D) $V_A < V_B, Z_A < Z_B$

161. An AIR station is broadcasting the waves of wavelength 300 metres. If the radiating power of the transmitter is 10 *kW*, then the number of photons radiated per second is

(A) 1.5×10^{29} B) 1.5×10^{31} (C) 1.5×10^{33} (D) 1.5×10^{35}

162. For the Bohr's second orbit of circumference $2\pi r$, the de-Broglie wavelength of revolving electron will be

(A) $2\pi r$ B) πr (C) $\frac{1}{2\pi r}$ (D) $\frac{1}{4\pi r}$

163. Threshold frequency for a metal is 10^{15} *Hz*. Light of $\lambda = 4000\,Å$ falls on its surface. Which of the following statements is correct

A) No photoelectric emission takes place (C) Photo-electrons come out with 10^3 *m/sec* speed

B) Photo-electrons come out with zero speed (D) Photo-electrons come out with 10^5 *m/sec* speed

164. The work function of metal is 1 *eV.* Light of wavelength 3000 *Å* is incident on this metal surface. The velocity of emitted photo-electrons will be

(A) 10 *m/sec* B) 1×10^3 *m/sec* (C) 1×10^4 *m/sec* (D) 1×10^6 *m/sec*

165. In a photoelectric experiment for 4000 *Å* incident radiation, the potential difference to stop the ejection is 2 *V*. If the incident light is changed to 3000 *Å*, then the potential required to stop the ejection of electrons will be

(A) 2 *V* B) Less than 2 *V* (C) Zero (D) Greater than 2 *V*

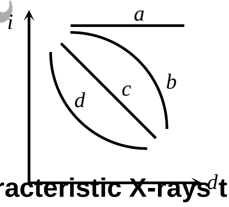
166. A point source of light is used in an experiment on photoelectric effect. Which of the following curves best represents the variation of photo current (*i*) with distance (*D)* of the source from the emitter

(A) *a*

B) *b*

(C) *c*

(D) *d*



167. Consider λ_1 and λ_2 are minimum wavelengths of continuous and characteristic X-rays then

A) $\lambda_1 = \lambda_2$ B) $\lambda_1 > \lambda_2$ C) $\lambda_1 < \lambda_2$ D) None of these

168. The penetrating power of X-rays increases with the

A) Increase in its velocity C) Increase in its frequency

B)Increase in its intensity D) Decrease in its velocity

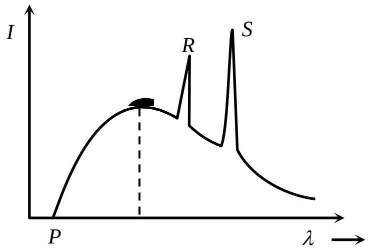
169. If the potential difference between the anode and cathode of the *X*-ray tube is increases

A) The peaks at *R* and *S* would move to shorter wavelength

B) The peaks at *R* and *S* would remain at the same wavelength

C) The cut off wavelength at *P* would decrease

D) B and c both are correct



170. The potential difference applied to an *X*-ray tube is 5*kV* and the current through it is 3.2 *mA.* Then the number of electrons striking the target per second is

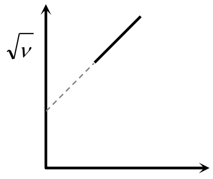
A) 2×10^{16} B) 5×10^{16} (C) 1×10^{17} (D) 4×10^{15}

171. If the operating potential of an X-ray tube is 50 *kV*, the velocity of X-rays coming out of it is

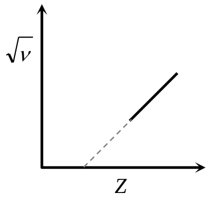
A) $4\times10^4\ m/s$ B) $3\times10^8\ m/s$ (C) $10^8\ m/s$ (D) $3\,m/s$

172. The graph between the square root of the frequency of a specific line of characteristic spectrum of *X*-rays and the atomic number of the target will be

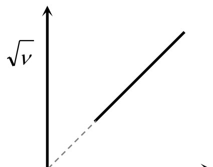
A)



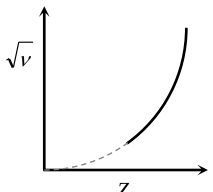
C)



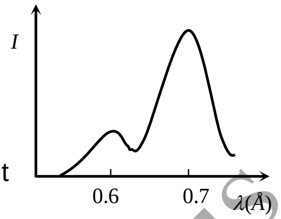
B)



D)



173. In the diagram a graph between the intensity of X-rays emitted by a molybdenum target and the wavelength is shown, when electrons of 30 keV are incident on the target. In the graph one peak is of K_α line and the other peak is of K_β line



A) First peak is of K_α line at 0.6 Å
B) Highest peak is of K_α line at 0.7 Å
C) If the energy of incident particles is increased, then the peaks will shift towards left
D) If the energy of incident particles is increased, then the peaks will shift towards right

174. Matter wave is associated with matter
A) When it is stationary
B) When it is in motion with the velocity of light only
C) When a charged body is in motion with any velocity
(D) When any body is in motion with any velocity

175. The kinetic energy of electron and proton is $10^{-32} J$. Then the relation between their de-Broglie wavelengths is
(A) $\lambda_p < \lambda_e$ (B) $\lambda_p = \lambda_e$ C) $\lambda_p > \lambda_e$ (D) $\lambda_p = 2\lambda_e$

176. The work function of a metal is 4.2 eV, its threshold wavelength will be
(A) 4000 Å (B) 2955 Å C) 3500 Å (D) 2500 Å

177. The work function of a photoelectric material is 3.3 eV. The threshold frequency will be equal to
(A) $8 \times 10^4 Hz$ (B) $8 \times 10^{10} Hz$ C) $8 \times 10^{56} Hz$ (D) $8 \times 10^{14} Hz$

178. If the work function of a metal is 'ϕ' and the frequency of the incident light is 'ν', there is no emission of photoelectron if
(A) $\nu < \frac{\phi}{h}$ (B) $\nu > \frac{\phi}{h}$ C) $\nu = \frac{\phi}{h}$ (D) $\nu >=< \frac{\phi}{h}$

179. As the intensity of incident light increases
(A) Photoelectric current increases
B) Photoelectric current decreases
(C) Kinetic energy of emitted photoelectrons increases
(D) Kinetic energy of emitted photoelectrons decreases

180. A beam of light of wavelength λ and with illumination L falls on a clean surface of sodium. If N photoelectrons are emitted each with kinetic energy E, then
(A) $N \propto L$ and $E \propto L$ B) $N \propto L$ and $E \propto \frac{1}{\lambda}$ (C) $N \propto \lambda$ and $E \propto L$ (D) $N \propto \frac{1}{\lambda}$ and $E \propto \frac{1}{L}$

ENGLISH

Choose the correct word words to complete each sentence.

181. His ____ nature is repelling people from him, instead of attracting them to become friends.
A) haggard B) haughty C) coveted D) dilapidated

182. The opposition is getting ready to ________ a powerful attack on the government.
A) mount B) havoc C) limp D) niggle

183. Juveniles should not be tried ________ criminals because juveniles are immature and their decision making capability is not fully developed.
A) with B) of C) to D) for

SPOT THE ERROR: In the following sentences some segments of each sentence are underlined. Your task is to identify that underlined segment of the sentence, which contains the mistake that needs to be corrected. Fill the circle corresponding to that letter under the segment in the MCQ Response Form.

184. My cat mewed angrily ;therefore I knew she wanted food.
A B C D

185. No one thought that Ali could make the jump, it was just too high.
A B C D

186. The guns began almost instantly and as there was plenty of shrapnel falling about outside.

A B C D

187. The marriage, however, was extremely happy, and the wife seems to have been an important factor of her
A B C
husband's work.
D

188. Quite a large number of diseases have common symptoms and if you read a book of diseases and their
A B C
symptoms you will find that you have many of those symptoms.
D

In each of the following questions, four alternative sentences are given. Choose the CORRECT one and fill the circle corresponding to that letter in the MCQ Response Form.

189.
A) The iPhone is the best smart phone, so I bought one.
B) The iPhone is the best smart phone so I bought one.
C) The iPhone is the best smart phone; so I bought one.
D) The iPhone is the best smart phone therefore I bought one.

190.
A) My tooth cracked and I desperately needed to see a dentist.
B) My tooth cracked, and I desperately needed to see a dentist.
C) My tooth cracked, and, I desperately needed to see a dentist.
D) My tooth cracked, and; I desperately needed to see a dentist.

191.
A) They listened to a mood to be amused and it was easy to satisfy them.
B) They listened with a mood to be amused and it was easy to satisfy them.
C) They listened in a mood to be amused and it was easy to satisfy them.
D) They listened from a mood to be amused and it was easy to satisfy them.

192.
A) However; I am a hobbyist. I love to gad about.
B) However, I am a hobbyist. I love gad about.
C) However, I am a hobbyist. I love for gadding about.
D) However, I am a hobbyist. I love to gad about.

193.
A) But it is necessary to keep constantly in mind the simple fact that there is no substitute of health.
B) But it is necessary to keep constantly in mind the simple fact that there is not substitute for health.
C) But it is necessary to keep constantly to mind the simple fact that there is no substitute for health.
D) But it is necessary to keep constantly in mind the simple fact that there is no substitute for health.

194.
A) The explosions still continued deafeningly; the whole building shook as if it were being lifted off its foundations.
B) The explosions still continued deafeningly, the whole building shook as if it were being lifted off its foundations.
C) The explosions still continued deafeningly; the whole building shook as if it were being lifted of its foundations.
D) The explosions still continued deafeningly: the whole building shook as if it were being lifted off its foundations.

195.
A) He got associated in the Radio and also worked for the BBC in London for several years.
B) He got associated with the Radio and also worked for the BBC in London for several years.
C) He got associated with the Radio and also worked in the BBC in London for several years.
D) He got associated with the Radio and also worked for the BBC of London for several years.

In each of the following questions, four alternative meanings of a word are given. You have to select the NEAREST CORRECT MEANING of the given word and fill the appropriate Circle on the MCQ Response Form.

196. PLACIDLY
A) vivaciously B) ardently C) agilely D) stuffily

197. MINIATURE
A) exiguous B) conspicuous C) salubrious D) pertinacious

198. INTENTLY
A) melancholy B) fervidly C) humongously D) ginormously

In each of the following questions, four alternative words are given. You have to select the option OPPOSITE in meaning to the given word and fill the appropriate Circle on the MCQ Response Form.

199. JEOPARDY
A) serenity B) instability C) durability D) capability

200. NUISANCE
A) nurture B) capture C) rupture D) rapture

TESTS ARE THE BEST FOR YOUR TEST